

VIRTUAL BROWSING: THE GEORGIA TECH LIBRARY IN THE DIGITAL AGE



THE EVOLUTION OF MEDIA

Thomas Jefferson once wrote in a letter to John Adams “I cannot live without books: fewer will suffice where amusement, and not use, is the only future object,” detailing why he was selling his personal library to Congress after British had burned the congressional library on August 24th, 1814. Since then, the need for information as well as entertainment has strengthened even more, but the way people access publications has evolved. The modern polemic of the library is the relevance of a building that houses books when it seems that the average person has done away with physical books in favor of online resources. In order to adapt to the needs of Georgia Tech students, an alternative to physical browsing is needed.

A general trend over the past decade has been the proliferation of online materials such as e-books as well as a technological diversification of library resources, and the emergence of virtual browsing. The Georgia Tech library has 250,000 e-books and 24,000 electronic journals available to patrons, and in 2013, the Library counted 2.47 million titles downloaded. The Georgia Tech Library has also moved past simply checking out books, and it now offers resources such as computers, cameras, e-readers, and other equipment that are relevant the university student. For the purpose of this report, browsing, whether physical or virtual, will be defined as the open search for content based off of physical or informational cues. What is traditionally seen as physical browsing is the process of roaming print collections and picking publications off of shelves with only basic information influencing selection, such as title, author, and cover. As the library moves to a more web-based model, we have started to see the spawn of a number of virtual browsing solutions, but most are either too rudimentary or misguided in their approach. All current efforts try to emulate the experience of physical browsing, either listing by a similar informational system as used in physical bookshelves (title, author, cover), or by providing a visual representation of a physical bookshelf or library.

We seek to re-imagine virtual browsing in a way that is more relevant to the 21st century. Iterations on the concept of virtual browsing rely too heavily on the legacy of the physical library. Those that don't are still far too rudimentary in their approach to conveying meaningful information. Currently, the University System of Georgia uses ExLibris for all of its libraries and browsing experiences. What some other universities have started doing, such as Harvard with its *Stacklife* program, is to congregate resources by common theme and lay them out as a visual emulation of the library stacks. We would like to take this approach to organization and presentation of data to the next level. Current discussions at the Georgia Tech Library have lead to a wealth of ideas, including but not limited to the presentation of meta-data, the incorporation of social media, and a personalized experience.

Therein lies the issue we address: How do we create a virtual browsing experience to augment the time-honored physical stack-browsing experience? The medium of the Internet allows the presentation of much more information than is available from physically browsing, yet no one has capitalized on that potential to a satisfying extent. Simply put, we are proposing a better way to connect students to the resources, whether print, online, or in person, that the library has to offer over a medium that they are already using. Finally, we also seek to emulate the serendipity of a physical browsing experience with our virtual design.

LOOKING FOR ALTERNATIVES

In creating a new virtual browsing experience, we look to current implementations as examples of not only what advances have already been made but also of what we could improve upon. So far, current implementations of virtual browsing systems seem overburdened with information and attempt to match the layout of the stacks of a library, yet still lack the organic experience of researching and discovering through physical stacks.

StackLife, Harvard University's new virtual browsing system, serves as our first case study as the most prominent attempt of a university to tackle the issue that is virtual browsing. As a primary representative example of recent innovation in virtual browsing, it does not particularly further virtual browsing to recreate an online copy of the stacks. StackLife allows the user to scroll through the spines of books, visually incorporating metadata. The depth of the blue color of the book indicates how often it has been used by the Harvard community, and each book has a corresponding StackScore that provides a numerical value to represent frequency of use. Clicking on a title makes visible a sidebar that provides the title, author, book cover, availability, access through Amazon or Google Books, publication information, and a button labelled "Advanced Bibliographic Data" that makes visible the ISBN, OCLC, and language of the book.

StackLife
Infinite Stack

Subject Stacks
Economics.

Community Stacks
Recently Viewed

tag it Go!

Tratado de economía política Say 1804

An inquiry into the nature and causes of the wealth of nations Smith 1776

The Glasgow edition of the works and correspondence of Adam Smith 1976

An inquiry into the nature and causes of the wealth of nations Smith 1776

Principles of political economy Scrope 1803

An inquiry into the nature and causes of the wealth of nations Smith 1776

An inquiry into the nature and causes of the wealth of nations Smith 1776

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An inquiry into the nature and causes of the wealth of nations Smith 1776

An inquiry into the nature and causes of the wealth of nations Smith 1776

An inquiry into the nature and causes of the wealth of nations Smith 1776

Untersuchungen über die Natur und die Urs Smith 1784

An outline of the science of political economy Senior 1836

A handbook of political economy Sigma 1858

Search Go!
Advanced Search

An inquiry into the nature and causes of the wealth of nations

Smith, Adam, 1723-1790. | Lerner, Max, 1902-1992. | Cannan, Edwin, 1861-1935, ed. | Chandler, Alfred D. (Alfred Dupont), 1918-2007, former owner. | Rawls, John, 1921-2002, former owner.

HOLLIS
Google Preview

Availability ▼
New York, The Modern Library, 1937
Advanced Bibliographic Data ▼

StackScore 31

Despite providing metadata that informs the reader about popularity and length of the book, StackLife translates too literally the process of physically looking through a shelf for a book--the visual is an infinite stack of books that makes searching seem like a tedious and linear process--what can a researcher do but scroll through the stack, looking at titles and author names? The use of metadata without a clear structure is of dubious utility. Simply recreating the view of a line of books does not simulate the classification of books by subject or the feel of flipping through a book and collecting small pieces of information. Meanwhile, searching for exact titles does not actually lead to the desired book in the search results, which are instead based on general inclusion of keywords and ranking of StackScore. Overall, systems like StackLife that provide a lifelike visual of the stacks do differ greatly from a traditional browsing catalog that displays books like search results in response to a search term. However, does a virtual browsing system need to emulate the exact experience of the stacks? Virtual browsing uses a different medium than physical browsing and should not be expected to function identically, especially when weighing the advantages of electronic searching. The information provided by the sidebar becomes cumbersome online. StackLife reflects a trend in many existing library catalogs of providing large amounts of information as soon as the researcher searches for a keyword or title.

As a researcher looking for a book on a certain topic, what information does one want to see immediately (as opposed to the information traditionally presented by a physical book)? A person usually pays attention to the title first, then the cover, and often, a summary of the book if it is available. The average person rarely pays attention to metadata such as publication date or publisher unless they are required to get an exact copy of a book. In addition, if StackLife is a browsing system for the Harvard library, it begs the question of whether or not a link to Amazon or Google Books should be immediately available. Unnecessary metadata prevents a minimalist, streamlined presentation of information that is arguably key when displaying information electronically as complicated layouts and many blocks of information can be distracting and difficult to process.

Finally, StackLife and public library catalogs do not attempt to emulate one of the most important elements of research--serendipity. Often, a researcher will find material relevant to their subject of interest, but that material's citations or mentioned topics may then lead the researcher on a journey to other information or authors that can refocus their research in unexpected but interesting ways. Without much sense of what the book contains or references, being led to more relevant material is difficult and having to search linearly can lead to dead ends. There is also very little personalization of the researching experience--a person in a physical library could ask a librarian for help, receiving suggested material based on topic or what they have already researched. Especially for the case in which a researcher does not have an existing idea of what material they want or need, being able to make predictions based on past decisions or explorations would allow virtual browsing to take full advantage of digital footprints.

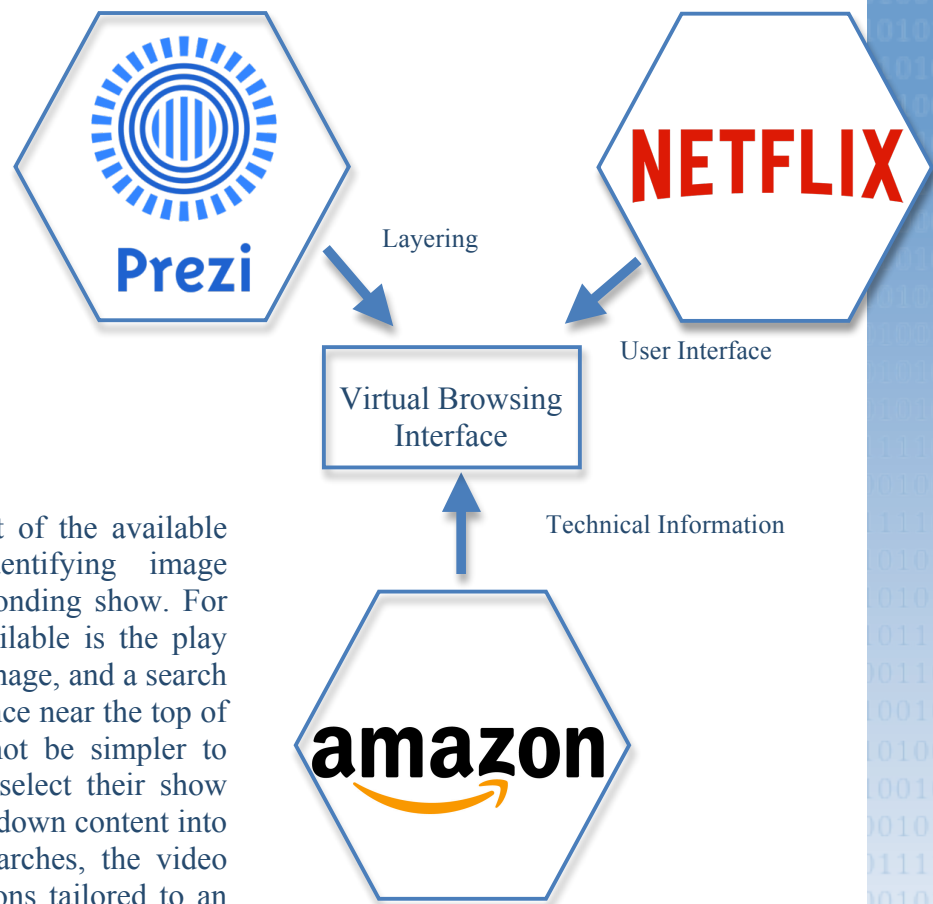
DESIGN MENTALITY

After finding and understanding inherent flaws in current library visual browsing systems, we can identify the steps that must be taken for the creation of a novel interface. This system must succeed where others have failed in restoring serendipity to the process of content discovery, knowing full well that an exact replica is not possible using existing technology. Our system must go above and beyond a

one-to-one translation of stack browsing while still maintaining a comparable intuition and allowing users of the Georgia Tech Library broad access to query the library archives. Statement of primary design considerations for this system must come before any organizational steps can be taken.

In designing a novel virtual browsing system for our library, we face the dichotomy of form versus function that applies to web platforms. Every great utility must be matched by an equally effective design choice, for when a website designer finds the perfect balance between these two careful measures, we, the users, will cease to view the interface as lines of text on a screen. Our computer screens form a gateway to boundless resources, all at our fingertips. Different disciplines require different balances of form versus function to build the best system. Practically speaking, the Georgia Tech library is first and foremost a resource for academic knowledge and technical information for students. While some non-academic literature must be available for leisure, our library exists as a working library, and function must take priority over form. This does not imply, however, that the two cannot coexist. A solution that implements a rigid, unaesthetic design is destined to fail our students and faculty. Instead, we must learn from solutions that already exist, and take their teachings into account when building this new interface.

Our primary sources of design inspiration come from the Netflix, Prezi, and Amazon platforms, and while each website serves a very different function, their forms contain practical design elements that we can implement in a virtual browsing system. Netflix, the video streaming web service offering movies and TV shows to consumers, provides valuable advice on content display and user customization. The initial interface upon connection shows a panel layout of the available content, simply displaying an identifying image captioned by the name of the corresponding show. For most image tiles, the only button available is the play button when the user hovers over the image, and a search menu is also available for quick reference near the top of the site. The initial interface could not be simpler to learn, and within seconds, users can select their show and start watching. Netflix also breaks down content into categories, and based on previous searches, the video service can assemble an array of options tailored to an estimated user preference. The category display does not inundate the page with excessive metadata, and by creating a user-defined experience, Netflix encourages both continuous use and exploration of new content.



Prezi's design incorporates the idea of layer-based browsing, as users can design their visual presentations to zoom in and zoom out of certain areas. This creates a powerful visual impact, and while Prezi presentations may be one-dimensional in terms of navigation, the layering idea can expand to the library interface design. By starting with a simple, Netflix-style interface as a top level, users can explore a very basic array of content that may suit them. While this is fine for leisure, the visual tile array does not suit a researcher's needs when standing alone. By using a search bar or options within a certain tile, users can navigate layers of information without ever feeling overwhelmed. Prezi-style layering will allow users to descend into deeper and deeper layers of information with every click, starting from a simple visual array and ending with extensive documentation and information about every piece of content available in the Georgia Tech Library. The simplicity of layer navigation is of prime importance here, as any notion of an intuitive system would fall apart were the user to become lost in a never-ending maze of information. This would mean implementing some navigation elements of the interface to be constantly present for quick return to the home menu or a previous search.

At the ground level of object identification, Amazon's content interface provides an excellent example of information display. Amazon, as an online shopping retailer, provides a wide variety of products, and as such, the site must display as much pertinent information as possible to potential customers. For every item for sale, Amazon provides a section for extensive customer review, different pricing options, a series of descriptive images, technical/product details, correlated items that previous users purchased, and even a Question and Answer section on product information. This final stage of product viewing gives the user everything they need to know in a clean display without confusion. By comparing the current selection with other associated products using constantly developing purchasing trends, serendipity is achieved. On such a principle, it becomes possible to browse endlessly through webs of connection across the site without losing sight of the task at hand. By combining a simple, user-customized interface with a wealth of information via a network of easy-access layers and effective visual design, the virtual browsing experience of the Georgia Tech Library could become truly immersive and open to students, allowing our finest minds to navigate clusters of data from across the globe.

This kind of access to information may sound similar to navigating in uncharted waters, and to avoid this sensation, the Georgia Tech Library can implement browsing categories that are designed to add wind to the sails of student discovery. One category idea, tentatively titled "Professor's Picks," would allow department faculty to choose a selection of relevant texts, or a "readlist" for their students to access. This system will also promote connection with and respect for our professors. From this springboard of ideas, users can explore their disciplines at a deeper level. At the discretion of our library faculty, recommended articles, papers, or other works could be presented to students as brief reading for the curious student. Our library visual browsing system should also include a page that informs students completely about the resources offered, such as camera rentals and studio facilities. There is nearly infinite room for the development of institute-specific browsing aids once the foundation of our virtual browsing system is built.

NEXT STEPS: IMPLEMENTATION

When considering how to implement virtual browsing within the context of the current Georgia Tech Library catalog, there appear to be two realistic options. The first being to build on top of the existing repository software, provided by the ExLibris Group, that is currently used. The Georgia Tech

Library uses ExLibris Alma, a management service for librarians, and will soon upgrade to the more recent Primo, a search and discovery service that can be integrated into the existing system. This new service exposes an Application-Program Interface (API), open for developers to use, and can be used to query searches and explore resources from outside of the Primo application. This facilitates development of a third-party virtual browsing platform independent of having full access to the library catalog or management system. This approach appears extremely viable in terms of development, but it requires that our web application be built from scratch, with no foundation. Depending on how much control a developer requires, this could either be a positive or a negative.

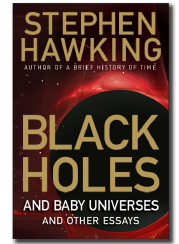
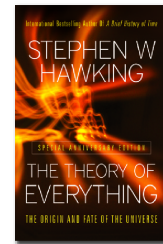
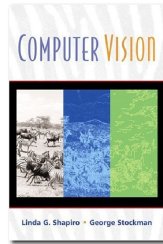
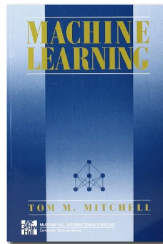
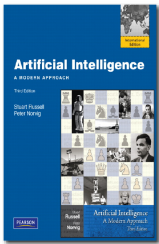
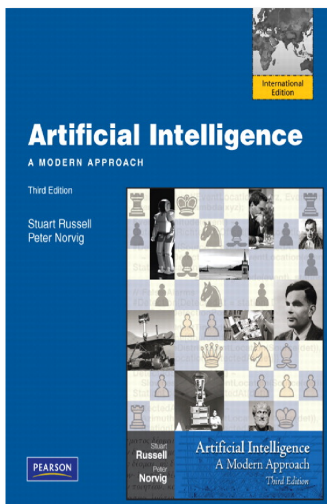
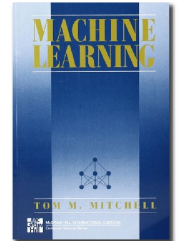
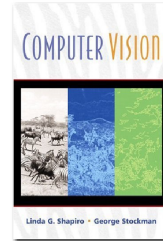
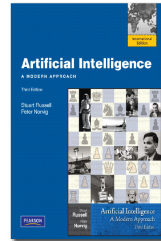
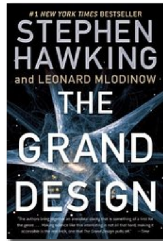
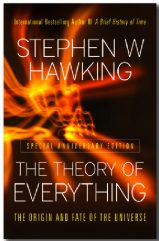
The other option for consideration is the Fedora Hydra repository system. This solution provides a framework for web applications using Ruby on Rails, where developers can create “heads” for the repository. One “head” would be a virtual browsing experience that can access the extent of the repository. A large developer community exists for Fedora Hydra, and many other universities and organizations use this system. The drawback to this approach is that it requires the current repository system be migrated over to Fedora Hydra, something that is of indeterminate time and effort. Though it provides a more powerful and developed framework for creating web applications, the task of migrating an entire library’s database alone is enough of a barrier to entry. For library systems that already implement this system, creating a new virtual browsing “head” is less painful than the other approach. Because of this, for Georgia Tech’s scenario, using the API through ExLibris Primo appears to be the best option. It is a system that the institute has plans to use, and the simple API provides the possibility for student development without access to private or confidential information.

The actual design of virtual browsing experience hopes to use images to capture attention, and shows “shelves” of titles based on personal attributes, if possible. This is part of the personal curated selections that helps users find content of interest, whether it be on major, past readings, or other information. Selecting a resource brings the user to a page where they can see a synopsis, as well as titles that the current resource cites, or is cited by. This emulates the “getting lost” exploratory experience, and especially for research, creates a lineage of ideas, much like Wikipedia. Included at the end of this white paper are a few drafts of the possible web experience for future library users based on our exploration of the subject

CONCLUSION

With all of the changes and evolution that will come to the Georgia Tech Library, virtual browsing is arguably one of the most influential, affecting students both in and out of the library. From our discussions in this paper, we believe that a real solution is in our grasp. By recognizing the flaws in other systems and daring to reach beyond, the virtual browsing experience implemented at the Georgia Tech Library will find balance between form and utility. It will once again be possible to achieve serendipity when browsing, although the mode of access may be different. We hope to implement an effective system through the principles discussed here and hopefully influence the national conversation with respect to virtual browsing.

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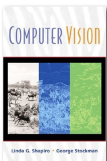
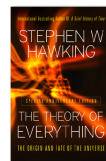
Russel S., Norvig, P.

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